(Why) Are Internal Labor Markets Active in French Business Groups?

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WORK IN PROGRESS

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Building a bridge between labor and finance

- Labor literature has studied Internal Labor Markets (ILMs) **WITHIN FIRMS**. Focus on internal careers (Doeringer and Piore).

- Finance literature has suggested that **BUSINESS GROUPS** run ILMs alongside Internal Capital Markets to make up for frictions in external markets (Khanna and Palepu, 1997; Khanna and Yafeh, 2007).

- No empirical study so far on whether and how ILMs function within groups **BETWEEN FIRMS**.

Business Groups

- BGs are collections of legally independent firms partly or wholly owned by a single family/firm.
- BGs account for a large fraction of the economic activity both in **EMERGING** and in **DEVELOPED** economies (LaPorta et al., 1999; Faccio and Lang, 2002).

Comprehensive data for France:

- From 1999 to 2010, affiliated firms accounted for around **40%** of total employment and **60%** of value added.
- In manufacturing, such percentage is as high as 70% (above 90% in automotive and energy).

Research questions

- Do **INTERNAL LABOR MARKETS OPERATE** within French business groups?
  - Do ILMs facilitate within-group but between-firms job-to-job transitions?
  - Are there occupations for which the ILM effect is stronger?
  - In which groups is the ILM more active?

- What **FUNCTIONS** do ILMs perform within groups and when are they more likely to add value (or prevent destruction) ?
  - Make up for frictional external labor markets (firing costs, asymmetric information, training, unions, regulations)
  - Insurance across firms: allow group firms to lower labor adjustment costs when faced with idiosyncratic shocks
  - Provide insurance to workers through job stability within the group $\rightarrow$ spur incentives to acquire *group*-specific human capital

- Part of a **BROADER RESEARCH AGENDA** on business groups:
  - Interaction between internal capital and labor markets
  - Affiliated firms vs. stand-alone firms: differences in terms of employment policy, exports, etc.
  - Endogenous group formation and diversification.

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Outline

Is there an ILM effect on job-to-job transitions?

The ILM should facilitate within-group between-firms job-to-job transitions, if it exhibits less severe frictions than the external labour market:

- Is a group-affiliated firm more likely to hire workers originating from its own group rather than from other firms in the economy? (Inflows)

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In order to address this concern, we follow Kramarz and Thesmar (2013).

Affiliated firms hiring workers (Inflows)

- Consider the triplet occupation of origin o, occupation of destination z, affiliated firm j.
- Denote as c the set of **ALL** workers in occupation o in a given firm at $t-1$ that, at time t, move to occupation z in a **DIFFERENT** firm.
- The probability that worker i moving from occupation o to occupation z finds a job in firm j is given by:

$$E_{i,c,j} = \beta_{c,j} + \gamma_{c,j} BG_{i,j} + \varepsilon_{i,j} \tag{1}$$

where:

- $\beta_{c,j}$ natural tendency of workers moving from occupation o to occupation z to find a job in firm j
- $\gamma_{c,j}$ excess probability of a worker moving from o to z to be employed in firm j if he/she comes from a firm that belongs to the same group as j

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Affiliated firms hiring workers (Inflows)

- We then define:

$$R_{c,j}^{BG} = \frac{\sum_{i \in c} E_{i,c,j} BG_{i,j}}{\sum_{i \in c} BG_{i,j}} = \beta_{c,j} + \gamma_{c,j} + \widetilde{u}_{c,j}^{BG} \tag{2}$$

as the fraction of workers that are hired by firm j over all workers moving from occupation o to z whose firm of origin **BELONGS** to the same group as firm j.

- And

$$R_{c,j}^{-BG} = \frac{\sum_{i \in c} E_{i,c,j}(1 - BG_{i,j})}{\sum_{i \in c}(1 - BG_{i,j})} = \beta_{c,j} + \widetilde{u}_{c,j}^{-BG} \tag{3}$$

as the fraction of workers that are hired by firm j over all workers moving from occupation o to z and whose firm of origin **DOES NOT BELONG** to the same group as firm j.

Affiliated firms hiring workers (Inflows)

- We then define:

$$R^{BG}_{c,j} = \frac{\sum_{i \in c} E_{i,c,j} BG_{i,j}}{\sum_{i \in c} BG_{i,j}} = \beta_{c,j} + \gamma_{c,j} + \widetilde{u}^{BG}_{c,j} \tag{2}$$

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$$R^{-BG}_{c,j} = \frac{\sum_{i \in c} E_{i,c,j} (1 - BG_{i,j})}{\sum_{i \in c} (1 - BG_{i,j})} = \beta_{c,j} + \widetilde{u}^{-BG}_{c,j} \tag{3}$$

  as the fraction of workers that are hired by firm j over all workers moving from occupation o to z and whose firm of origin **DOES NOT BELONG** to the same group as firm j.

Affiliated firms hiring workers (Inflows)

- The difference between the two ratios eliminates the **FIRM-OCCUPATION PAIR** fixed effect $\beta_{c,j}$:

$$R_{c,j}^{BG} - R_{c,j}^{-BG} = \gamma_{c,j} + \widetilde{\nu}_{c,j} \tag{4}$$

- This difference measures **HOW MORE LIKELY IS FIRM j TO HIRE A WORKER (TRANSITING FROM o TO z) ORIGINATING FROM THE GROUP THAN NOT ORIGINATING FROM THE GROUP.**

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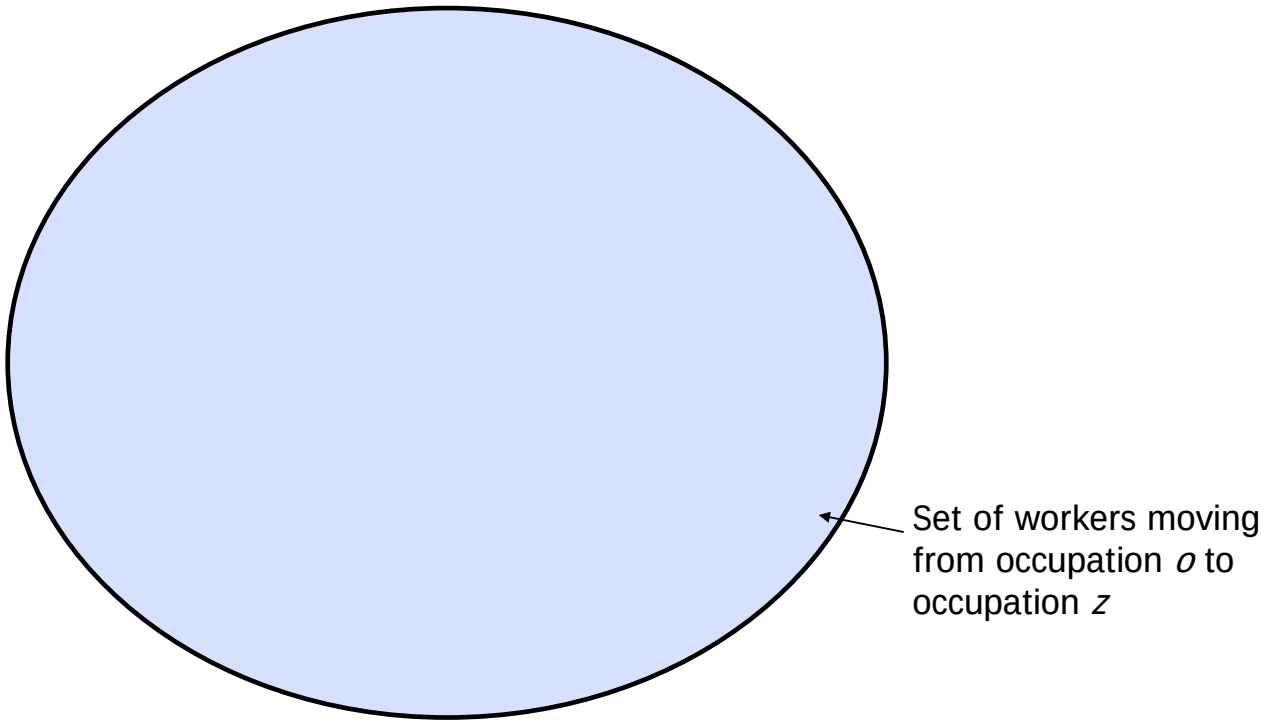

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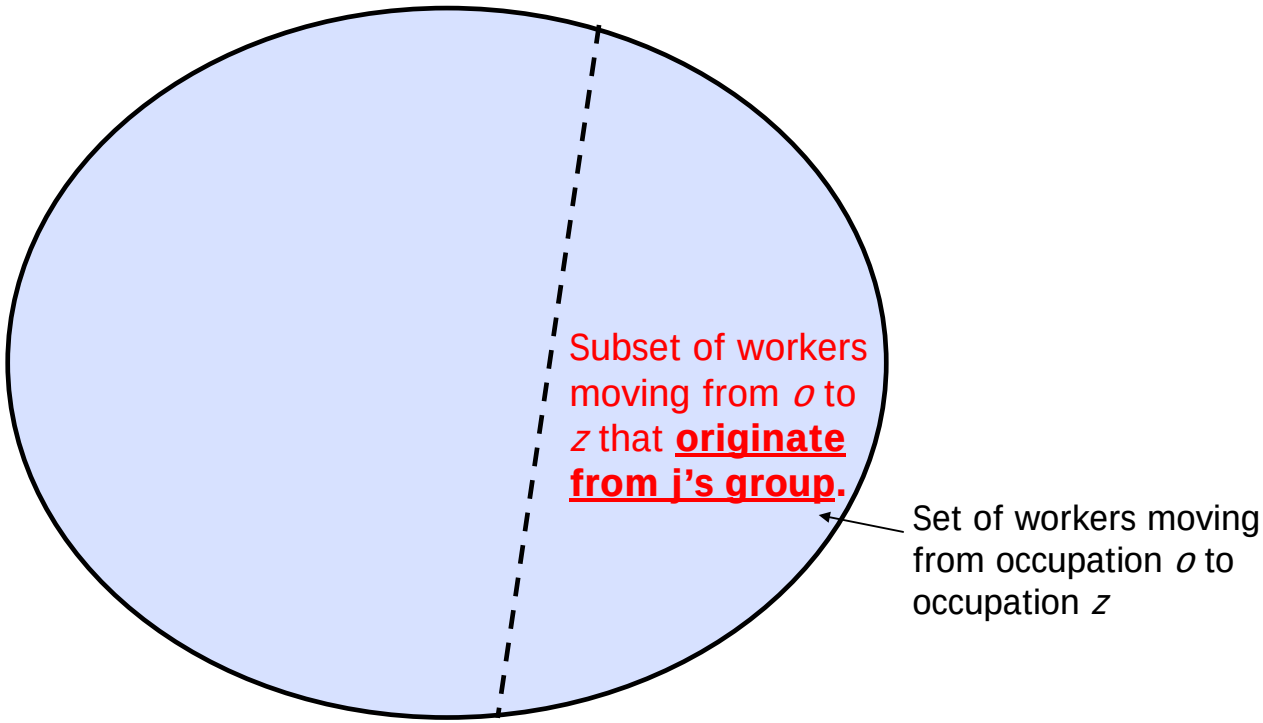

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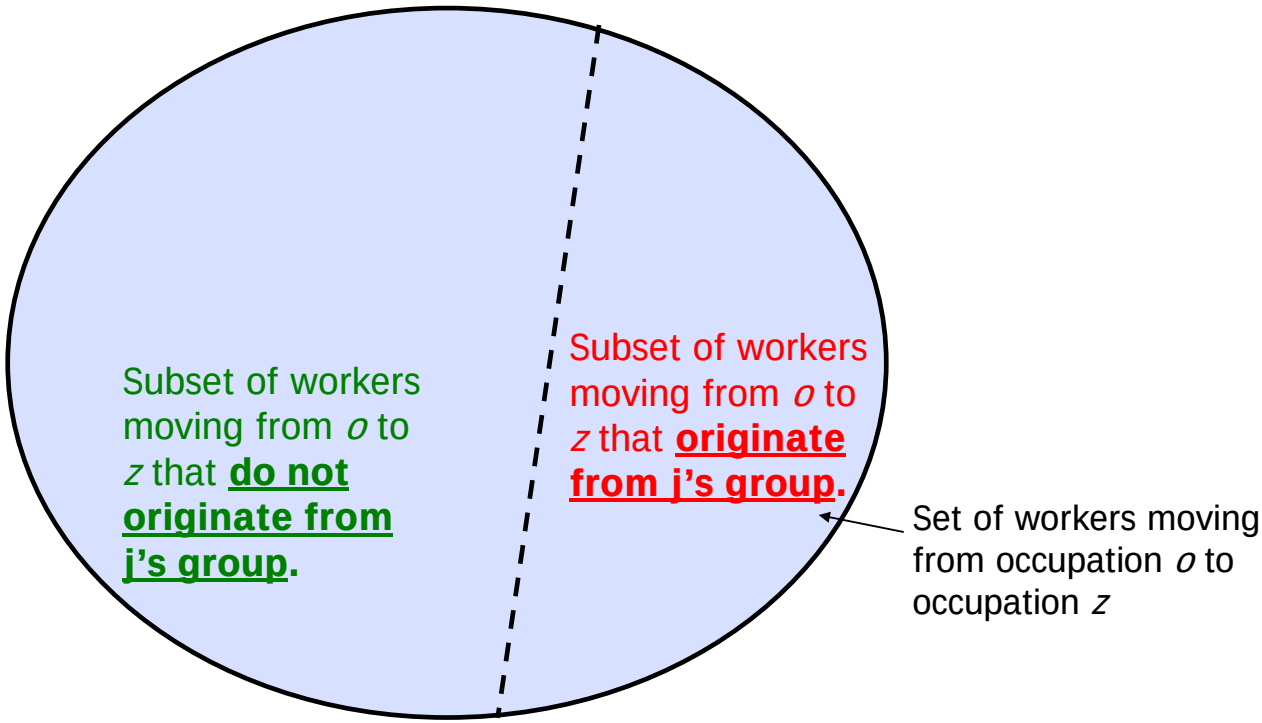

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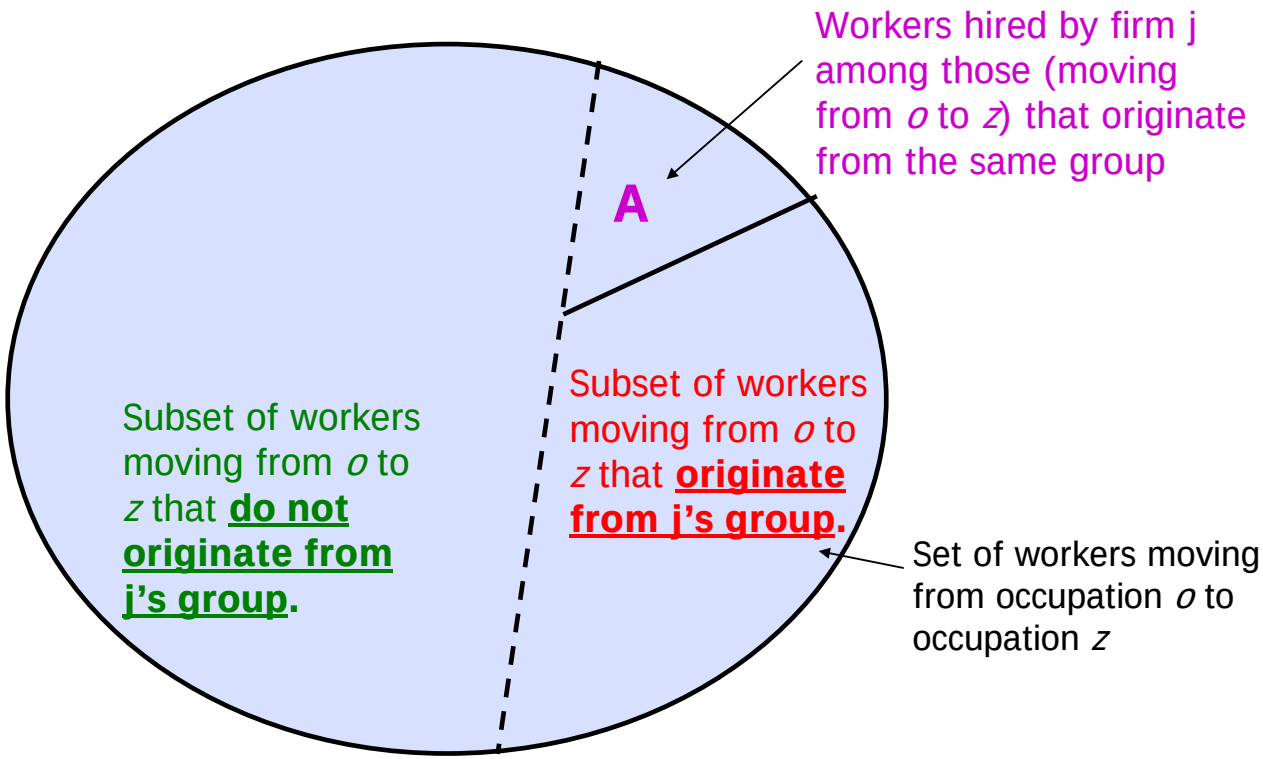

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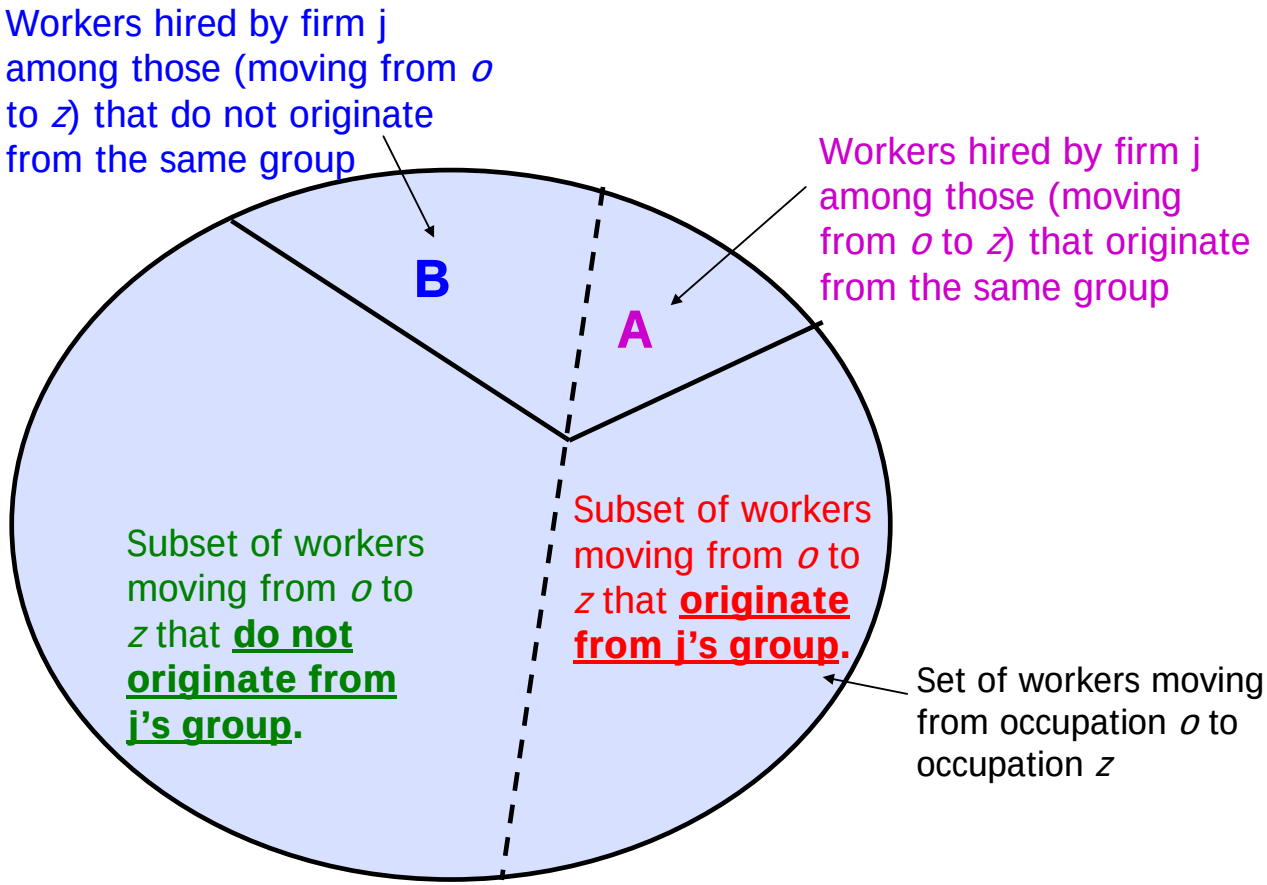

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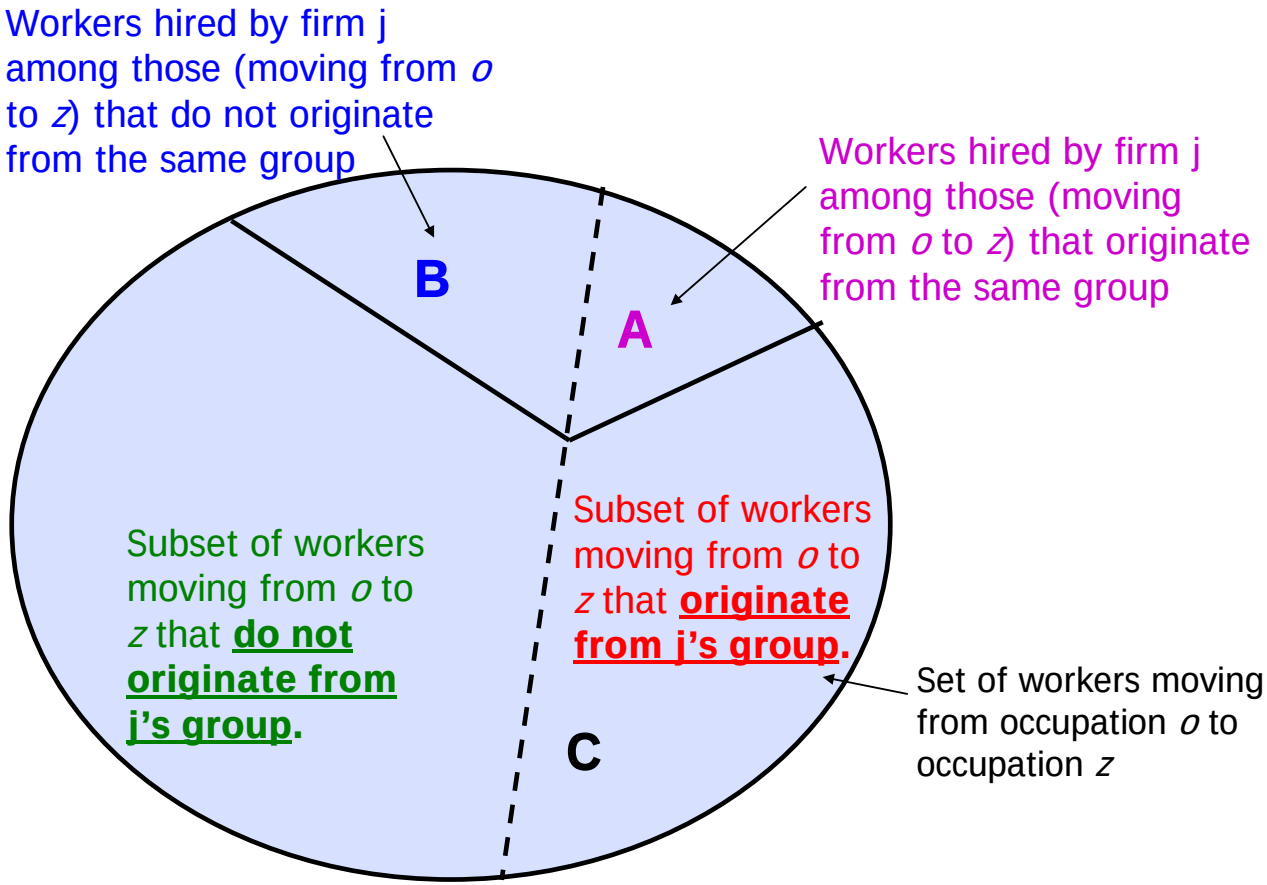

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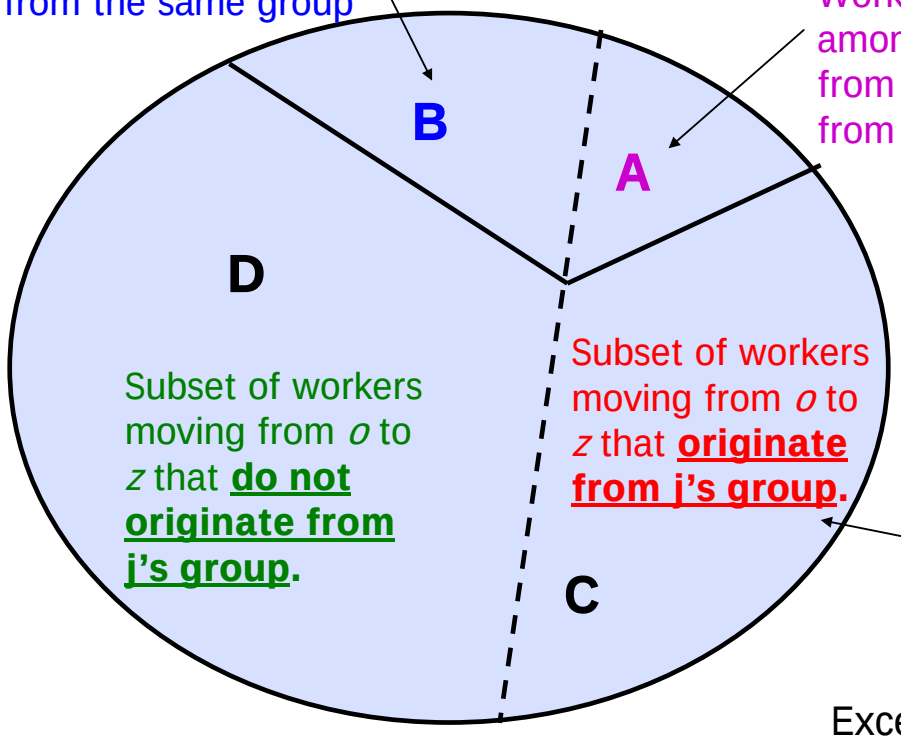

Excess probability=

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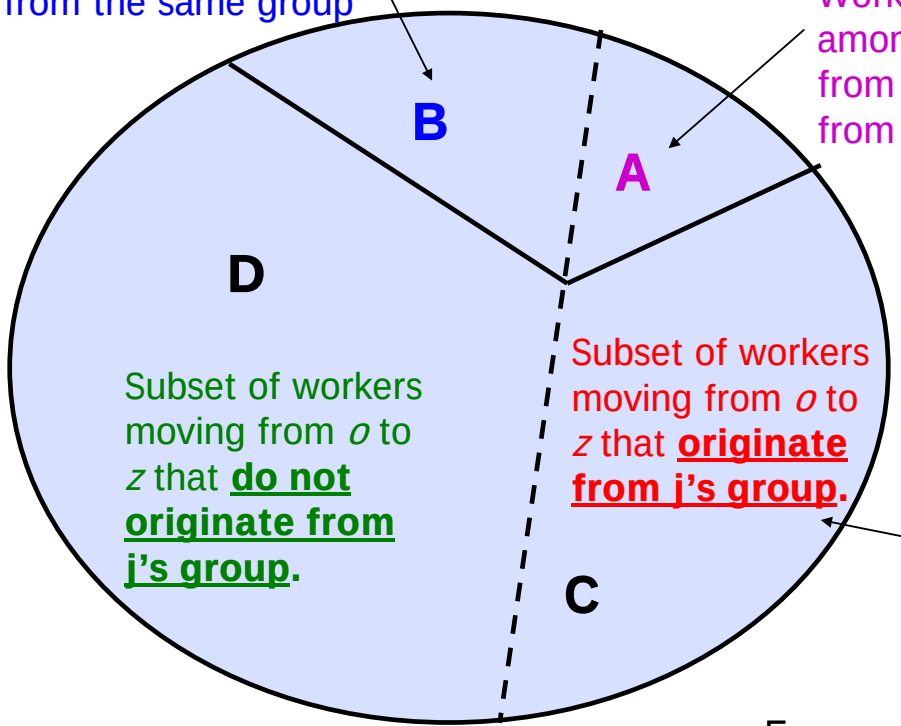

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We are estimating the counterfactual probability through the workers that were originally employed outside the group

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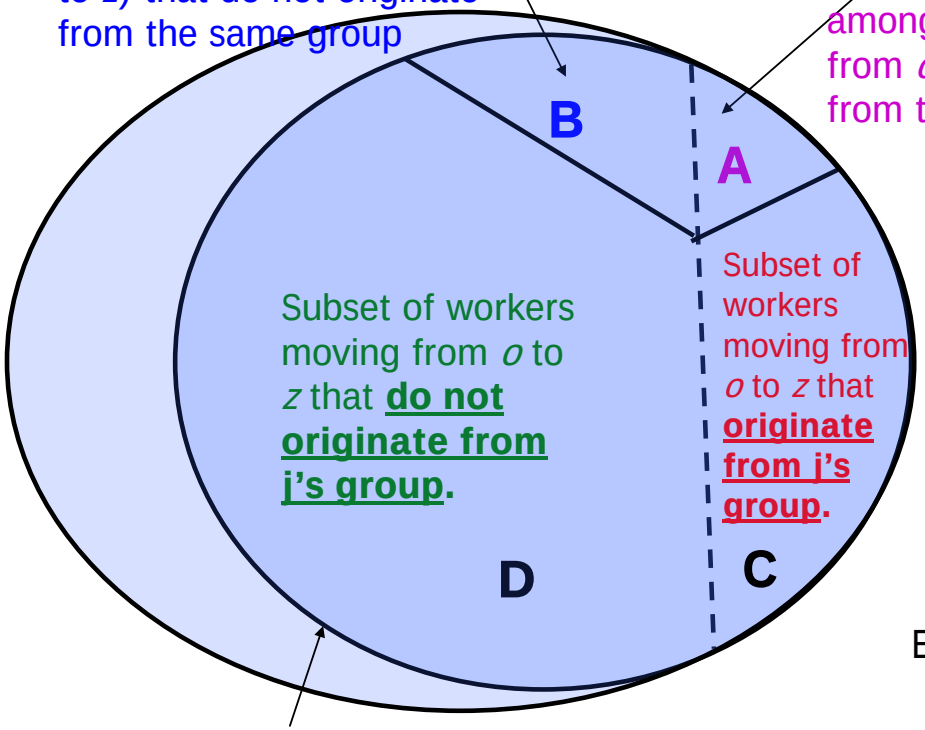

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The data

We merged **DADS** (allowing us to follow workers from firm to firm) and **LIFI** (allowing us to identify all the firms affiliated with a given group).

- DADS Postes Files: administrative database of matched employer-employee information collected by INSEE:
  - cover *all* employed people in the economy.
  - for each individual, information on the plant/firm identifier **in year t** and **in year t-1**.
  - for each year, information on: wage, number of working days, number of hours, type of occupation, full time/part time status, geographical location (of the plant and the firm), industry classification, etc.
- LIFI Files: survey collected by INSEE
  - unique data set for the study of BG activity
  - available information: financial links between firms with identification of the head of a group and of all the firms (directly and indirectly) controlled by the head.
  - covers the vast majority of French BGs.

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Sample selection

- The merged data span the period 2002-2010.
- We disregard transitions from/to unemployment.
- We have removed occupations denoted as 'Fonction Publique', temporary agencies and employers classified as 'particulier employeur' (non-firm employers).
- We remove observations with missing wage.
- This leave us with, on average:
  - **1,574,000** job-to-job flows per year during the sample period, which represent **6.7%** of total workers in our sample.
  - Intra-group flows represent **8.5%** of total flows in our sample.

For which occupations is the ILM more active?

- We have a $\gamma_{c,j}$ for every couple of occupations (and potentially departments, sex, industry...) and group affiliated firm
- To present these results we average this excess probability by:
  - occupation pair
  - occupation of origin (not shown)
  - occupation of destination (not shown)

For which occupations is the ILM more active?

Inflows (net of year and firm fixed effect)

TOP TEN

Occupation pair	Code	Mean
Professors, researchers, scientific occupations-Top managers of industrial/commercial firms with more than 10 employees	34-23	0.05179
Top managers of industrial/commercial firms with more than 10 employees -Professors, researchers, scientific occupations	23-34	0.04803
Top managers of industrial/commercial firms with more than 10 employees-Top managers of industrial/commercial firms with more than 10 employees	23-23	0.04408
Top managers/chiefs of industrial/commercial firms with less than 10 employees-Top managers of industrial/commercial firms with more than 10 employees	22-23	0.03798
Top managers of industrial/commercial firms with more than 10 employees-Administrative and commercial managers	23-37	0.03481
Top managers of industrial/commercial firms with more than 10 employees-Administrative and commercial managers	37-23	0.03410
Top managers/chiefs of industrial/commercial firms with less than 10 employees- Administrative and commercial managers	22-37	0.03320
Administrative and commercial managers-Top managers/chiefs of industrial/commercial firms with less than 10 employees	37-22	0.03201
Supervisors and 'agents de maitrise'-Supervisors and 'agents de maitrise'	48-48	0.03187

BOTTOM TEN

Occupation pair	Code	Mean
Personal service occupations-Administrative white collars in firms	56-54	0.0118
Handicraft non qualified workers- Handicraft qualified workers	68-63	0.01349
Industrial qualified workers-Industrial non qualified workers	62-67	0.01345
Sales and related occupations-Administrative white collars in firms	55-54	0.01231
Industrial non qualified workers-Industrial qualified workers	67-62	0.01203
Industrial qualified workers - Industrial qualified workers	62-62	0.01010
Handicraft qualified workers-Handicraft qualified workers	63-63	0.00984
Sales and related occupations-Sales and related occupations	55-55	0.00778
Personal service occupations-Personal service occupations	56-56	0.00608
Drivers-Drivers	64-64	0.00341

For which occupations is the ILM more active?

- The ILM effect is strong for transitions involving managerial occupations and other **HIGH HUMAN CAPITAL**, **INFORMATION-INTENSIVE OCCUPATIONS**.
- The ILM effect is weak for **UNSKILLED OCCUPATIONS** (blue collars, shop assistants, drivers)
- One potential explanation is that the ILM allows to alleviate search and training costs that are usually higher for skilled workers

Heterogeneity in ILM activity

For each year, we take averages of the excess probability $\gamma_{c,j}$ **BY FIRM**

Year	Mean	St.Err.	Percentiles 50	75	95	N
			Inflows			
2003	0.09794	0.00143	0	0.01923	0.80915	28775
2004	0.10266	0.00150	0	0.02270	0.91667	27841
2005	0.10384	0.00147	0	0.02414	0.93594	29307
2006	0.10384	0.00143	0	0.02480	0.94444	31105
2007	0.09598	0.00133	0	0.01556	0.80000	32904
2008	0.08659	0.00112	0	0.00595	0.66667	42500
2009	0.09768	0.00129	0	0.01118	0.87500	36480
2010	0.09563	0.00127	0	0.00800	0.92299	37791

One potential reason is **GROUP HETEROGENEITY**

Heterogeneity of Groups

The size distribution of groups is highly **ASYMMETRIC**:

- **FEW LARGE GROUPS**, with many large affiliates, that are diversified both from a sectoral and geographical perspective
- **MANY SMALL GROUPS**, with few small affiliates, that are hardly diversified.
- Groups in the top decile, on average:
  - have 20 units (top percentile: more than 100 units).
  - employ from 1000 to 600 workers per unit in the period 1999-2010.
  - operate in 7 different 4-digit industries (top percentile: 15 industries) and in 2 different macrosectors.
  - have units located in 4 different regions (top percentile: more than 7).
- Groups in the rest of the population:
  - have less than 6 units.
  - employ less than 50 workers per unit.
  - operate in less than 3 different 4-digit sectors.
  - have units mostly located in the same region.
- Diversification captured by HHI indices

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Descriptive Statistics

Firm-level

	Mean	St.dev.	Min	Max	N
$\overline{\gamma}_{jt}$	0.098	0.24	-0.64	1	232,646
Firm size (empl.)	168.61	1573.82	0.005	217640	232,646
Rest of the group size (empl.)	10327	20578,28	0.001	349038	232,646
Number of 4 digit sectors	11	17.39	1	92	232,646
Number of macrosectors	1.88	0.99	1	6	232,646
Number of regions	5.32	6.24	1	22	232,646
HHI (macro sectors)	0.87	0.18	0.26	1	232,646
HHI (4-digit sectors)	0.58	0.27	0.08	1	232,646
HHI (Paris)	0.85	0.19	0.5	1	232,646
HHI (Regions)	0.71	0.30	0.08	1	232,646
% of firms that close	0.015	0.12	0	1	232,646
Number of firm closure in the rest of the group	1.55	4.99	0	68	232,646
% of firms for which at least one firm closes in the rest of the group	0.28	0.45	0	1	232,646
Number of plant closure in the group	15.71	98.69	0	2149	232,646
% of firms for which at least one plant closes in the group	0.45	0.50	0	1	232,646

In which BGs is the ILM more active?

ILM and group sectoral diversification - Inflows

Variables	(1)	(2)	(3)	(4)	(5)
(Log) Firm size	0.012***	0.012***	0.012***	0.012***	0.012***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
(Log) Rest of the group size	-0.004	-0.003	-0.003	-0.003	0.000
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
(Log) Number of affiliated firms	-0.078***	-0.078***	-0.078***	-0.079***	-0.081***
	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
State Control	-0.016	-0.016	-0.0013	-0.016	-0.006
	(0.013)	(0.013)	(0.013)	(0.013)	(0.010)
Foreign control	-0.052***	-0.052***	-0.049***	-0.051***	-0.042***
	(0.013)	(0.013)	(0.013)	(0.013)	(0.010)
(Inverse) Diversification (Macrosectors)		**0.005**	**0.007**		
		(0.009)	(0.008)		
(Inverse) Diversification $\times$ Rest of the group size			**-0.009**		
			(0.005)		
(Inverse) Diversification (4 digit)				**-0.014***	**-0.025*****
				(0.007)	(0.007)
(Inverse) Diversification $\times$ Rest of the group size					**-0.019*****
					(0.003)
N	232,646	232,646	232,646	232,646	232,646
Adjusted R-squared	0.02	0.02	0.02	0.02	0.02
Firm $\times$ Group FE and year dummies	Yes	Yes	Yes	Yes	Yes

One star 5% significance, two stars 1% significance, and three stars 0.1% significance. Standard errors are clustered at the group level.

In which BGs is the ILM more active?

ILM and group geographical diversification - Inflows

Variables	(1)	(2)	(3)	(4)
(Log) Firm size	0.012***	0.012***	0.012***	0.012***
	(0.002)	(0.002)	(0.002)	(0.002)
(Log) Rest of the group size	-0.004*	-0.001	-0.003	0.001
	(0.002)	(0.002)	(0.002)	(0.002)
(Log) Number of affiliated firms	-0.079***	-0.080***	-0.080***	-0.082***
	(0.005)	(0.005)	(0.005)	(0.005)
State Control	-0.015	-0.007	-0.016	-0.007
	(0.013)	(0.012)	(0.013)	(0.011)
Foreign control	-0.052***	-0.046***	-0.052***	-0.044***
	(0.013)	(0.012)	(0.013)	(0.011)
(Inverse) Diversification (Paris Area)	**-0.029*** **	**-0.010**		
	(0.009)	(0.010)		
(Inverse) Diversification $\times$ Rest of the group size		**-0.026*** **		
		(0.004)		
(Inverse) Diversification (Regions)			**-0.032*** **	**-0.027** **
			(0.008)	(0.009)
(Inverse) Diversification $\times$ Rest of the group size				**-0.026*** **
				(0.004)
N	232,646	232,646	232,646	232,646
Adjusted R-squared	0.02	0.02	0.02	0.02
Firm $\times$ Group FE and year dummies	Yes	Yes	Yes	Yes

One star 5% significance, two stars 1% significance, and three stars 0.1% significance. Standard errors are clustered at the group level.

Firm/Plant Closure

Does the ILM become particularly active when some firms/plants in the group are closed?

- We identify **FIRM/PLANT CLOSURES**: firms/plants whose employment drops by more than 90% from one year to the other.
- We remove **FALSE CLOSURES**: cases in which more than 70% of the lost employment ends up in the same firm/plant.

In which BGs is the ILM more active?

ILM and firm closure - Inflows

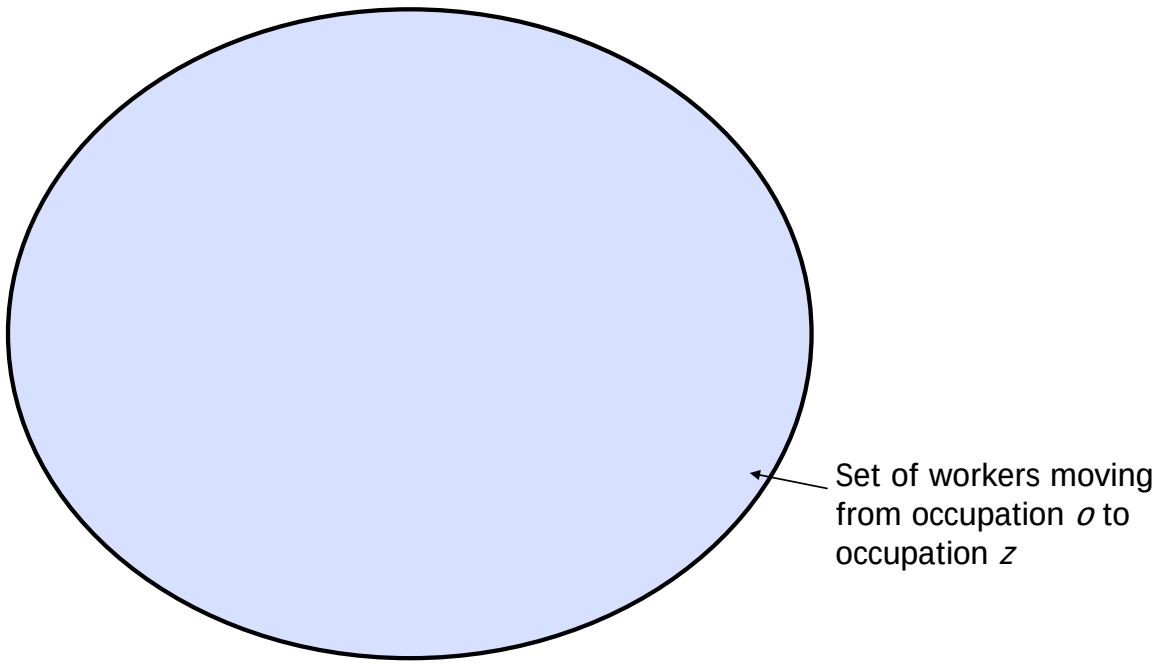
Variables	(1)	(2)	(3)	(4)	(5)
(Log) Firm size	0.012***	0.012***	0.012***	0.012***	0.012***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
(Log) Rest of the group size	-0.004 *	-0.004	-0.003	-0.003	- 0.003
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
(Log) Number of affiliated firms	-0.079***	-0.079***	-0.078***	-0.078***	-0.079***
	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
Firm closure in the rest of the group	**0.007*** **				
	(0.001)				
Exactly 1 firm closure		**0.007*** **			
		(0.001)			
Between 2 and 5 firm closures		**0.007*** **			
		(0.002)			
Between 6 and 20 firm closures		**0.008***			
		(0.003)			
More than 20 firm closures		**-0.004**			
		(0.016)			
Firm closure at t-1			**0.017*** **		
			(0.001)		
Exactly 1 firm closure at t-1				**0.018*** **	
				(0.001)	
Between 2 and 5 firm closures at t-1				**0.016*** **	
				(0.002)	
Between 6 and 20 firm closures at t-1				**0.020*** **	
				(0.003)	
More than 20 firm closures at t-1				**0.025**	
				(0.021)	
Plant closure in the group					**0.006*** **
					(0.001)
N	232,646	232,646	232,646	232,646	232,646
Adjusted R-squared	0.02	0.02	0.02	0.02	0.02
Firm $\times$ Group FE and year dummies	Yes	Yes	Yes	Yes	Yes

Displaced workers

- We estimate the excess probabilities on the set of workers displaced by the closing firms/plants.
- We focus on the workers separating from closing firms/plants in the last two years of activity of the firm/plant.

Displaced workers from closing firms (Outflows)

- Are **DISPLACED** workers that find a job in a group - as compared to those **DISPLACED** workers that find a job outside that group - more likely to originate from an affiliated **CLOSING** firm/plant?



Displaced workers from closing firms (Outflows)

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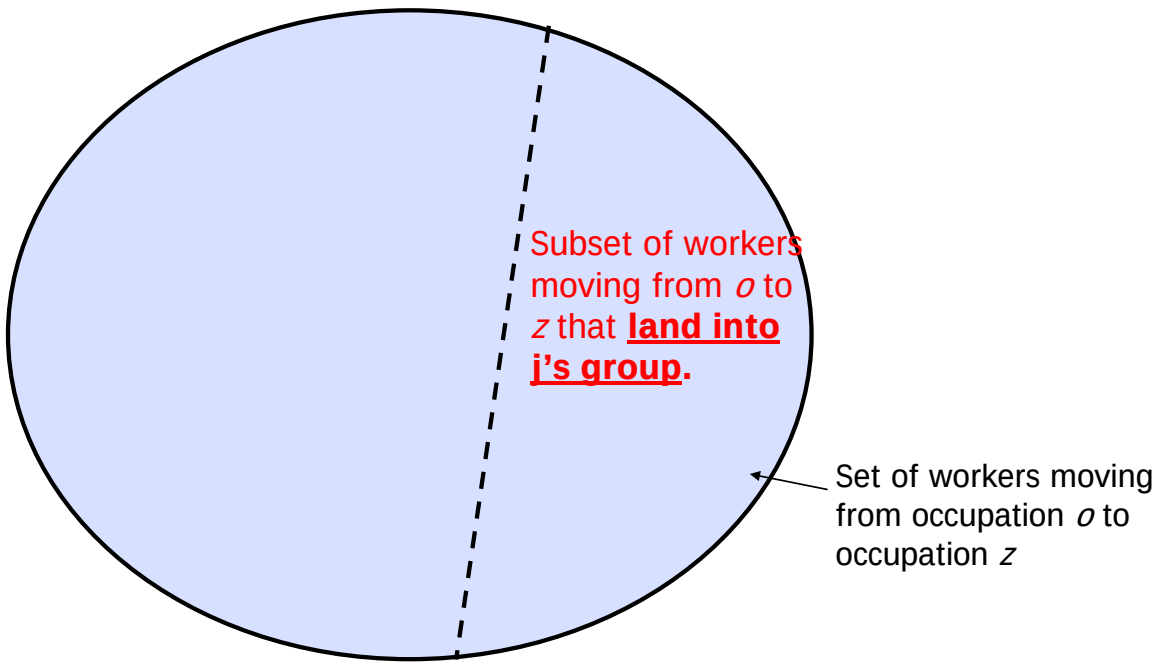

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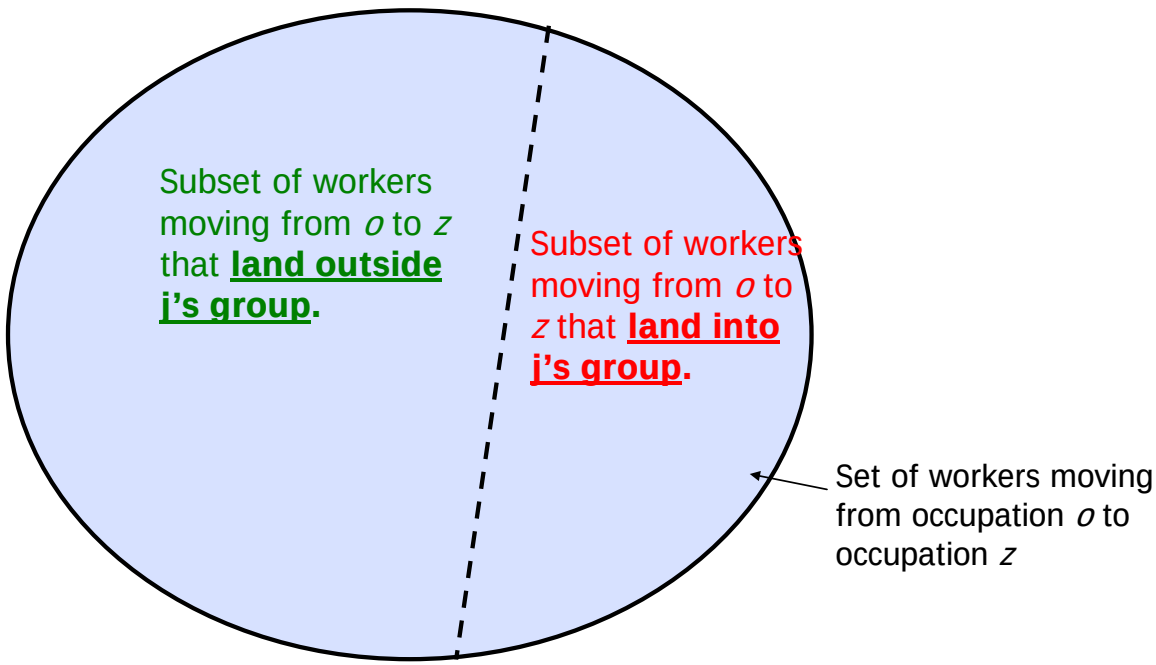

Displaced workers from closing firms (Outflows)

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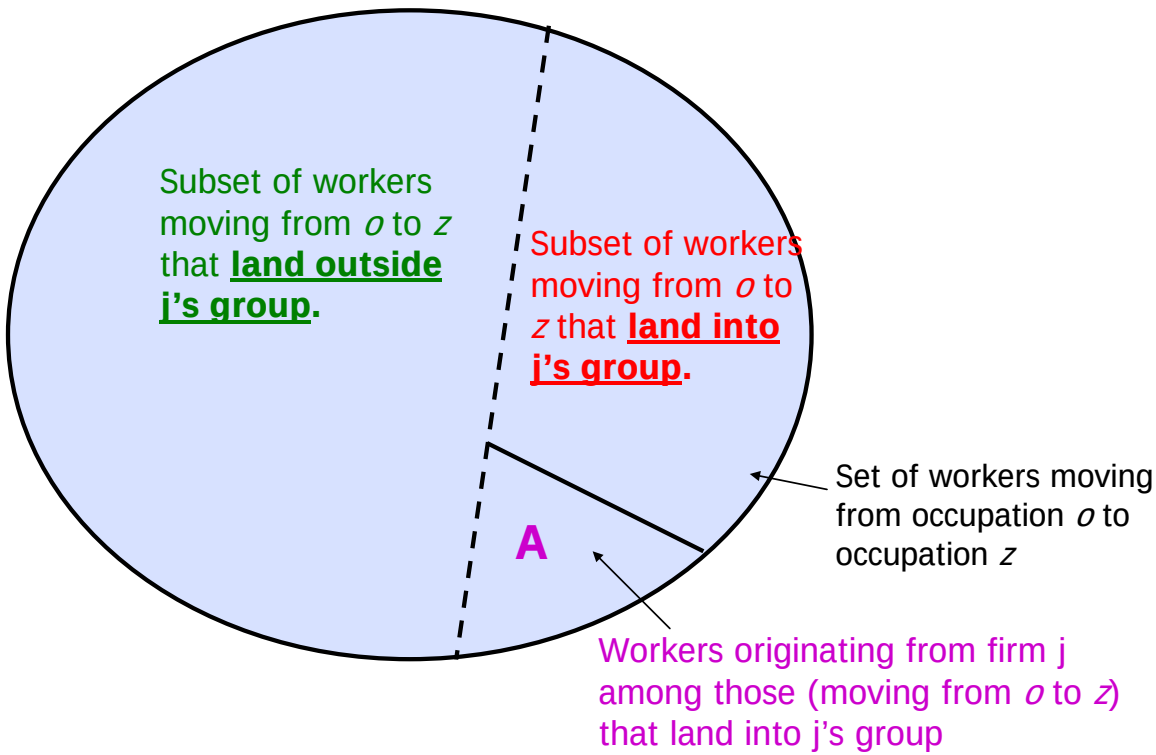
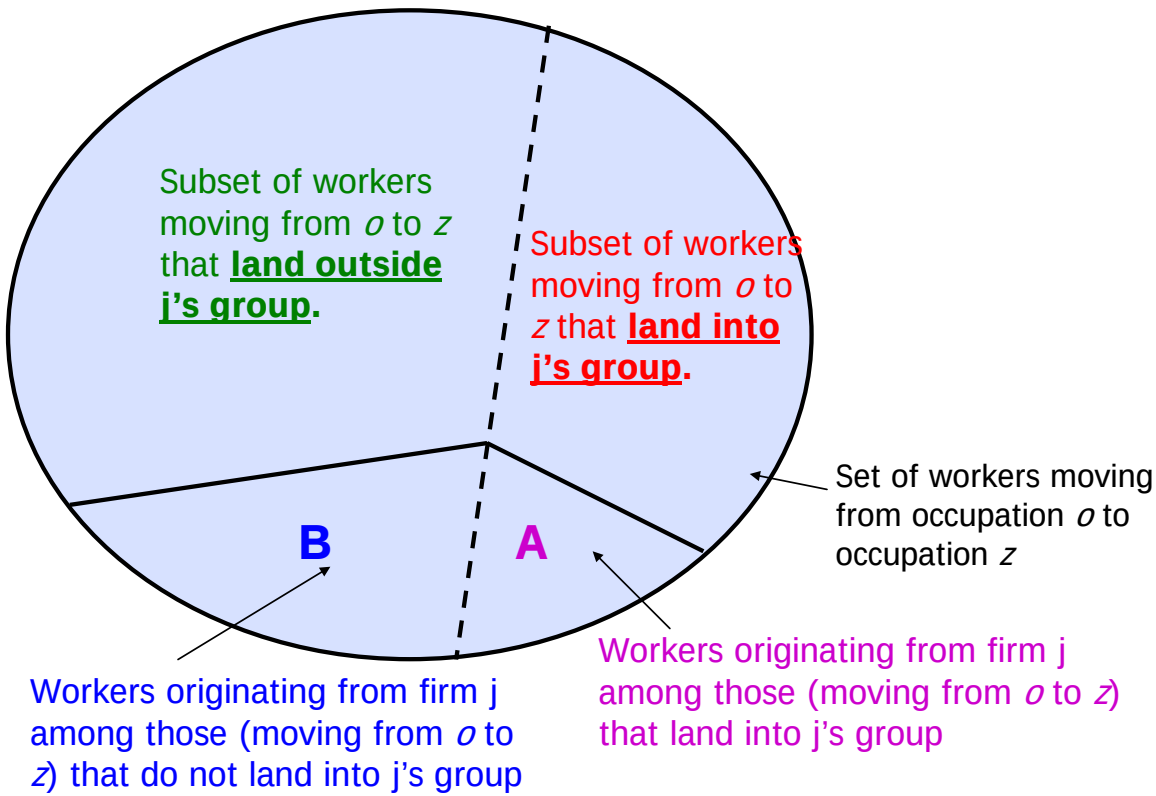


Displaced workers from closing firms (Outflows)

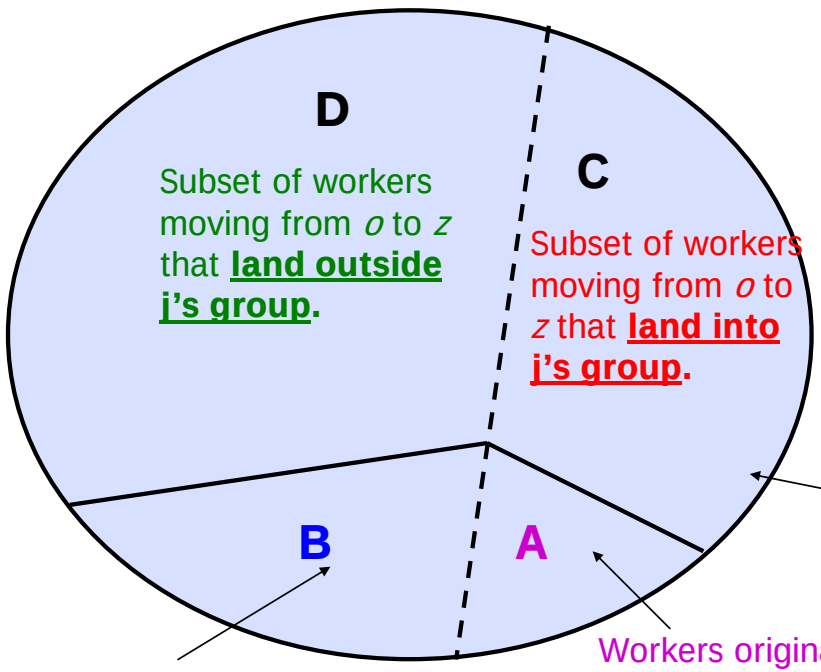
- Are **DISPLACED** workers that find a job in a group - as compared to those **DISPLACED** workers that find a job outside that group - more likely to originate from an affiliated **CLOSING** firm/plant?



Displaced workers from closing firms (Outflows)

- Are **DISPLACED** workers that find a job in a group - as compared to those **DISPLACED** workers that find a job outside that group - more likely to originate from an affiliated **CLOSING** firm/plant?

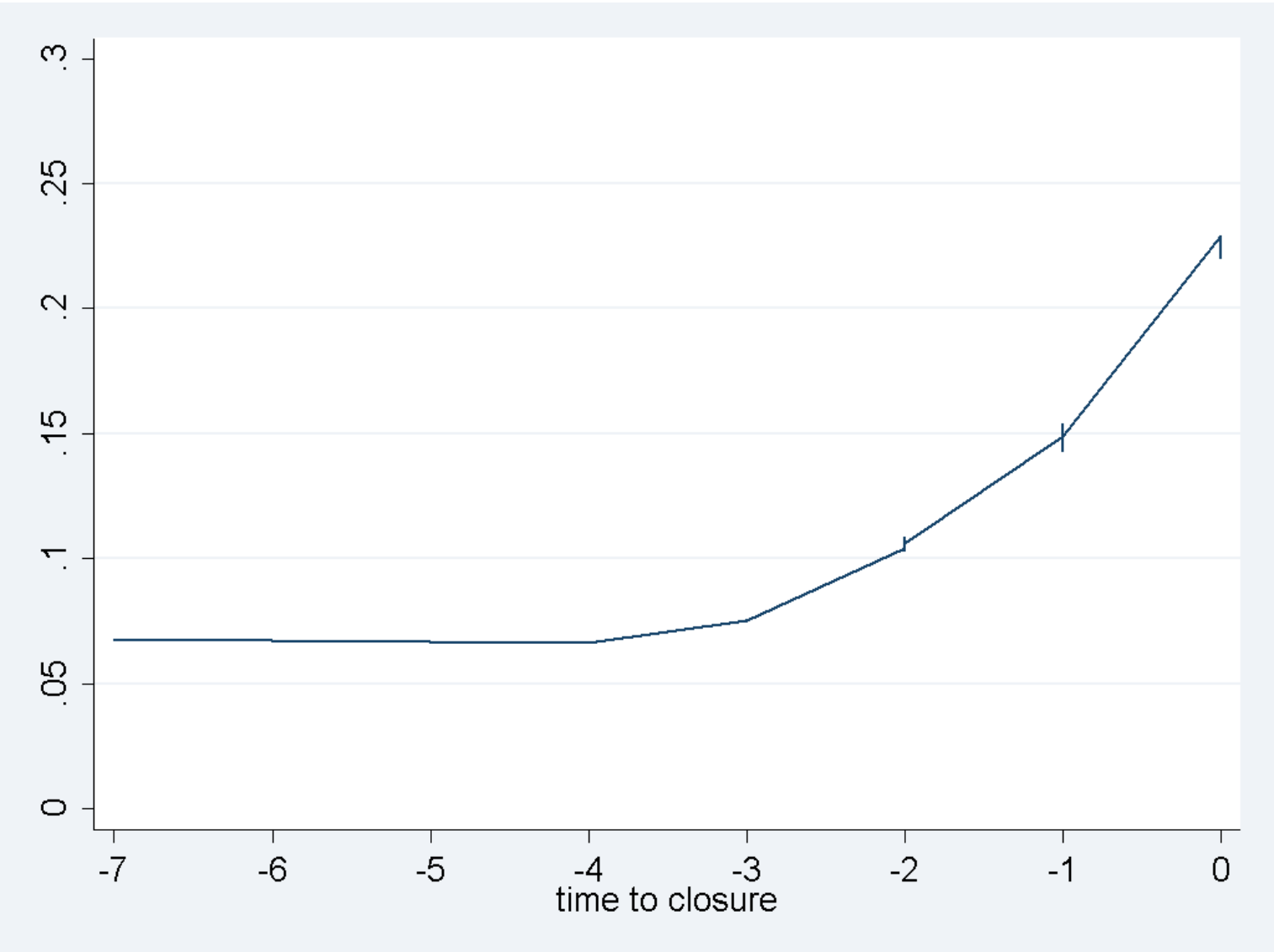
Excess probability= $\frac{A}{A+C} - \frac{B}{B+D}$



Displaced workers: Outflows

Year	Mean	St.Err.	Percentiles 50	75	95	N
			Firm closure			
2002	0.38339	0.01002	0.13991	0.95578	1	1831
2003	0.42535	0.01074	0.22222	0.99941	1	1664
2004	0.44958	0.01119	0.28981	1	1	1547
2005	0.44845	0.01114	0.31965	1	1	1554
2006	0.42650	0.01072	0.22584	0.99965	1	1642
2007	0.43220	0.01003	0.25000	0.99821	1	1871
2008	0.41062	0.00971	0.21067	0.99048	1	1951
			Plant closure			
2002	0.24691	0.00615	0.00300	0.46071	1	3790
2003	0.26776	0.00660	0.00928	0.50000	1	3528
2004	0.28958	0.00696	0.01536	0.60000	1	3366
2005	0.27069	0.00660	0.00684	0.50000	1	3548
2006	0.26988	0.00654	0.01089	0.50000	1	3580
2007	0.26670	0.00605	0.00522	0.50000	1	4197
2008	0.25695	0.00603	0.00586	0.49520	1	4118

Outflows from closing firms



Summary

FINDINGS:

- Internal labor market are active across firms/occupations. Particularly so, for:
  - occupations involving high human capital/skills
  - firms in diversified and large business groups
  - around closures
- Diversification and mobility suggest an **INSURANCE ROLE** for BG.

FUTURE RESEARCH:

- Does ILM soften financial constraints affiliated firms are subject to?
- Endogenous group formation: does EPL (50-employee threshold, unions...) trigger group formation?
- Endogenous group formation: does product market regulations trigger group formation?
- ...